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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/971,875	10/04/2001	Torben E. Veng	2428	4833

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EXAMINER	
KNAUSS, SCOTT A	
ART UNIT	**PAPER NUMBER**
2874	

DATE MAILED: 01/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/971,875	VENG, TORBEN E.	
	Examin r	Art Unit	
	Scott A Knauss	2874	UW

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 November 2003*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11 and 14-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11 and 14-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Response to Amendment

1. Applicant's amendment and response filed 11/25/03 has been entered and carefully considered by the examiner. However, applicant's amendments and arguments are not found to overcome the cited art for the reasons set forth below. Therefore, this rejection has been made **FINAL**.

2. First, Regarding applicant's amendment and traversal of the rejection of Hamada alone, and Sugizaki in view of Hamada, these amendments are not found to overcome the cited art

While it is true that the Hamada reference relied upon does not mention splice loss, the examiner submits that splice loss is a well recognized problem in the art, and it is the examiners opinion that, in formed a splice between two fibers, one would be motivated to use a splicing method which produces a little splice loss as possible. Thus, while Hamada may not explicitly state that the maximum temperature and ramp are optimized to reduce splice loss, the examiner submits that one of ordinary skill in the art would have been motivated to select such parameters to reduce splice loss, as this would produce a more efficient splice between fibers. Furthermore, regarding the "optimized" limitation claimed by applicant, the examiner submits that, since no steps are set forth in the claim as to what such an optimization process would encompass, merely choosing the best maximum temperature and ramp to reduce splice loss would meet such a limitation.

Hamada further does not explicitly disclose ramping down the temperature to room temperature. Nevertheless, as the function of the Hamada splicing method is to avoid abrupt drops in temperature in the splicing region, one of ordinary skill in the art would have been motivated to gradually ramp the temperature all the way down to room temperature for the purpose of avoiding any abrupt drops in temperature.

3. The applicant has also traversed the rejection of claims 14-16,19, and 20 over Sugizaki alone, arguing that the structure produced by the method limitations of claims 14 and 19 would inherently produce a structure different from that of Sugizaki alone.

While this may be true, it is the examiners opinion that, in order to overcome the "product by process" rejection, applicant must claim the method limitations in "means plus function format" ", i.e. "means for varying the level of the arc current". Otherwise, there is no claimed structure which performs the method steps set forth in the claim. The examiner submits that, in a device claim, all claimed limitations must be in the form of discrete elements, not merely method limitations

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 14-16,19 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 08-190030 (Sugizaki et al)

Regarding claims 14-20 applicant is claiming the product including the process of splicing a series of optical fibers, and therefore are of a "product-by-process" nature. The courts have been holding for quite some time that: the determination of the patentability of product-process claim is based on the product itself rather than on the process by which the product is made. In re Thrope, 777 F. 2d 695, 227 USPQ 964 (Fed. Cir. 1985); and patentability of a claim to a product does not rest merely on a difference in the method by which that product is made. Rather, it is the product itself which must be new and unobvious. Applicant has chosen to claim the invention in the product form. Thus, a prior art product which possesses the claimed product characteristics can anticipate or render obvious the claimed subject matter regardless of the manner in which it is fabricated. A rejection based on 35 U.S.C. section 102 or alternatively on 35 U.S.C. section 103 of the status is eminently fail and acceptable. In re Brown and Saffer, 173 USPQ 685 and 688; In re Pilkington, 162 USPQ 147.

As such, no weight is given to the process steps recited in claim 14-20, and thus claims 14-16,19 and 20 are anticipated by Sugizaki, since the process steps carry no patentable weight.

Regarding claim 14 Sugizaki discloses a first fiber #1 spliced (welded) to a second fiber #3 at a splice point #4.

Regarding claim 15 a first fiber #1 is a DCF.

Regarding claim 16, the second fiber #3 is a bridge fiber.

Regarding claims 19 and 20 Sugizaki discloses a first, DCF fiber #1 spliced to a first end of a bridge fiber #3 at a first splice point #4 and a second optical fiber #2 spliced to a second end of the bridge fiber at a second splice point #5.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 1 and 14 are rejected under 35 U.S.C. 103(a) as being anticipated by JP 06-174961 (Hamada et al)

Regarding claims 1 and 14, Hamada discloses a splicing method and resulting splice for optical fibers in figs. 1 and 2, comprising:

Generating an electric arc from an arc (discharge) current, the current having a level and duration sufficient to produce an electric arc with an intensity and duration sufficient to achieve a desired splicing temperature at a splice point between a pair of optical fibers #2 positioned within the arc.

Using the arc to splice the fibers;

Ramping the level of the arc current downward over time (see fig. 2, abstract), creating a downward ramp in temperature, reducing heat distortion (see translation, [0006])

Hamada does not, however disclose optimizing the ramp and maximum temperature to reduce splice loss, and ramping the temperature down to room temperature.

Nevertheless, as set forth above, while the Hamada reference relied upon does not mention splice loss, the examiner submits that splice loss is a well recognized problem in the art, and it is the examiners opinion that, in formed a splice between two fibers, one would be motivated to use a splicing method which produces a little splice loss as possible. Thus, while Hamada may not explicitly state that the maximum temperature and ramp are optimized to reduce splice loss, the examiner submits that one of ordinary skill in the art would have been motivated to select such parameters to reduce splice loss, as this would produce a more efficient splice between fibers. Furthermore, regarding the "optimized" limitation claimed by applicant, the examiner submits that, since no steps are set forth in the claim as to what such an optimization process would encompass, merely choosing the best maximum temperature and ramp to reduce splice loss would meet such a limitation.

Hamada further does not explicitly disclose ramping down the temperature to room temperature. Nevertheless, as the function of the Hamada splicing method is to avoid abrupt drops in temperature in the splicing region, one of ordinary skill in the art would have been motivated to gradually ramp the temperature all the way down to room temperature for the purpose of avoiding any abrupt drops in temperature.

Claims 2,3,6,7,17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hamada et al

Regarding claims 2 and 3 Hamada discloses that the arc current is controlled by a circuit which can continuously change the discharge current, thus acting as an arc current controller. However, Hamada does not explicitly state that the ramping is

performed automatically, by the controller, or that the controller is programmed to produce the downward ramp at the splice point.

Nevertheless, it would have been obvious to of ordinary skill in the art to automate that downward ramping since it would enable more precise control of the ramping process to provide the controlled ramp showed in fig. 2. Furthermore, it has been held that broadly providing an automatic means to replace manual activity which accomplishes the same result involves only routine skill in the art (In re Venner, 120 USPQ 192).

Regarding claim 3, Hamada further does not explicitly disclose that the circuit is programmed to create a downward ramp in temperature.

Nevertheless, programmable circuits are well known, and it would have been obvious to one of ordinary skill in the art to use such a circuit, because it would enable easy control and adjustment of the downward ramp shown in fig. 2 to produce a high strength splice which would have low loss.

Regarding claims 6,7,17 and 18, Hamada does not specify the types of fibers to be spliced, in particular, the first and/or second fibers being inverse dispersion fiber.

However, such fibers are well known in the art and are used to provide compensation of dispersion in optical transmission systems. It would have been obvious to one of ordinary skill in the art to splice two such fibers together in order to provide an increased amount of dispersion compensation in a fiber transmission system.

8. Claims 1,4,5,8-11,14-16, 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,933,561 (Sugizaki) in view of Hamada.

Regarding claims 1,4,5,8,9,14-16,19 and 20 Sugizaki discloses a method of reducing connection loss between a first, dispersion compensating fiber #2 and a second, single mode fiber (SMF) #4 using a bridge fiber #3, and discloses the use of fusion splicing to connect the fibers (see col. 3, lines 14-39).

Sugizaki does not, however, disclose the use of a method as set forth in claim 1 to splice together the first fiber #2 to bridge fiber #3, and bridge fiber #3 to fiber #4, i.e. (a) generating an electric arc from an arc current, the arc current having a level and duration sufficient to produce an electric arc with an intensity and duration sufficient to achieve a desired splicing temperature at a splice point between a first optical fiber and a second optical fiber positioned within the electric arc; (b) using the electric arc to splice together the first and second optical fibers; and (c) ramping the level of the arc current downward over time, thereby creating a downward ramp in temperature at the splice point from the splicing temperature to room temperature, the ramp and maximum temperature being optimized to reduce splice loss.

Such method is, however disclosed by Hamada et al, as discussed above, in which an arc discharge is generated by a discharge current to fusion splice two fibers together, the current being ramped down over time, resulting in a splice which has higher strength and which would inherently have lower splice loss.

Hamada does not, however disclose optimizing the ramp and maximum temperature to reduce splice loss, and ramping the temperature down to room temperature.

Nevertheless, as set forth above, while the Hamada reference relied upon does not mention splice loss, the examiner submits that splice loss is a well recognized problem in the art, and it is the examiners opinion that, in formed a splice between two fibers, one would be motivated to use a splicing method which produces a little splice loss as possible. Thus, while Hamada may not explicitly state that the maximum temperature and ramp are optimized to reduce splice loss, the examiner submits that one of ordinary skill in the art would have been motivated to select such parameters to reduce splice loss, as this would produce a more efficient splice between fibers. Furthermore, regarding the "optimized" limitation claimed by applicant, the examiner submits that, since no steps are set forth in the claim as to what such an optimization process would encompass, merely choosing the best maximum temperature and ramp to reduce splice loss would meet such a limitation.

Hamada further does not explicitly disclose ramping down the temperature to room temperature. Nevertheless, as the function of the Hamada splicing method is to avoid abrupt drops in temperature in the splicing region, one of ordinary skill in the art would have been motivated to gradually ramp the temperature all the way down to room temperature for the purpose of avoiding any abrupt drops in temperature.

Therefore it would have been obvious to one of ordinary skill in the art to use the fusion splicing method of Hamada, as modified, to fusion splice the first (#2) and bridge

(#3) fibers of Sugizaki, which would then be removed so that that the bridge (#3) and second (#4) fibers could then be spliced. Such a splicing method would be advantageous to be used in the fusion splicing of the fibers of Sugizaki in order to provide high strength splices which would have lower splice loss.

Regarding claims 10 and 11, Sugizaki,as modified, fails to disclose splicing a first , inverse dispersion fiber (IDF) to the bridge fiber, or splicing first and second IDF's via a bridge fiber.

Nevertheless, Sugizaki discloses a method of connecting two fibers of dissimilar core sizes to reduce connection loss, and it would have been obvious to one of ordinary skill in the art to use the method of Sugizaki to connect any two different sized fibers for the purpose of reducing connection loss. In particular, it would have been obvious to one of ordinary skill in the art to use the method of Sugizaki to splice together two IDF's having dissimilar core size for the purpose of providing additional amounts of dispersion compensation in a fiber transmission system.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

DE 3609407 (Becker et al) discloses another example of the use of a bridge fiber.

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Scott A Knauss whose telephone number is (703) 305-5043. The examiner can normally be reached on 9-6 Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick can be reached on (703) 308 - 4819. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0530.

sak
December 17, 2003

HEMANG SANGHAVI
PRIMARY EXAMINER